

WHAT IS CLAIMED IS:

1. A method for forming functionalized esters of carboxylic acids, comprising
5 heating a mixture including (1) a polyol compound having at least 3 primary hydroxyl groups/molecule and a melting temperature of 220°C or below and (2) a di- or triglyceride of one or more carboxylic acids, said heating being conducted under conditions sufficient to form a mixture of hydroxyl group-containing esters of said acids.
- 10 2. The method of claim 1, wherein the at least 50% by weight of the carboxylic acids have a conjugated group of at least two aliphatic carbon-carbon double bonds, and said heating is conducted under conditions sufficient to form a mixture of hydroxyl group-containing esters of said acids in which at least 80% of the conjugated
15 groups are unreacted.
3. The method of claim 2 wherein the carboxylic acids having a conjugated group of at least two aliphatic carbon-carbon double bonds contain 3 or 4 conjugated aliphatic carbon-carbon double bonds.
- 20 4. The method of claim 3 wherein the carboxylic acids are α -eleostearic acid, catalpic acid, puniic acid, calendic acid, jacaric acid, α -parinaric acid, or bosseopentaenoic acid.
- 25 5. The method of claim 4 wherein the di- or triglyceride is a plant or animal oil.
6. The method of claim 5 wherein the plant oil is tung oil.
7. The method of claim 6 wherein the polyol compound is trimethylolpropane, di-
30 trimethylolpropane or trimethylolethane.

8. The method of claim 2, wherein the mixture also contains a plant oil that does not contain a di- or triglyceride of one or more carboxylic acids of which carboxylic acids at least 50% by weight have a conjugated group of at least two aliphatic carbon-carbon double bonds.

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9. A hydroxyl- or isocyanate terminated, polyurethane group-containing prepolymer containing pendant aliphatic hydrocarbyl groups of from 8 to 22 carbon atoms, wherein at least 20% by weight of such hydrocarbyl groups contain a conjugated group of at least two aliphatic carbon-carbon double bonds.

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10. The prepolymer of claim 9 wherein said conjugated groups contain 3 or 4 aliphatic carbon-carbon double bonds.

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11. The prepolymer of claim 10 which is the reaction product of a polyisocyanate and a functionalized oil having free hydroxyl groups.

12. The prepolymer of claim 11 wherein the functionalized oil is a functionalized tung oil.

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13. The prepolymer of claim 12 which is isocyanate-terminated.

14. The prepolymer of claim 11 which is water-dispersible.

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15. A dispersion of polyurethane particles in an aqueous phase, wherein the polyurethane particles contain pendant hydrocarbyl groups having a conjugated group containing at least two aliphatic carbon-carbon double bonds.

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16. The dispersion of claim 15 wherein the conjugated group contains at least three aliphatic carbon-carbon double bonds in conjugation.

17. The dispersion of claim 15 wherein the pendant hydrocarbyl group is derived

from tung oil.

18. A method for making a dispersion of polyurethane particles, comprising

- 5 A. forming a water dispersible, isocyanate-terminated prepolymer by reacting a stoichiometric excess of a polyisocyanate with an isocyanate-reactive composition, the isocyanate-reactive composition including at least (1) an isocyanate-reactive compound having pendant hydrocarbyl or substituted hydrocarbyl groups that contain at least two aliphatic carbon-carbon double bonds in conjugation and at least one of (2) an isocyanate-reactive compound containing an anionic or cationic
- 10 group or precursor to such an anionic or cationic group or (3) an isocyanate-reactive, nonionic hydrophilic compound;
- B. if component (2) is used and contains a precursor to an anionic or cationic group, neutralizing said precursor to form an anionic or cationic group,
- 15 C. dispersing the isocyanate-terminated prepolymer to form a plurality of prepolymer droplets stably dispersed in an aqueous phase; and
- D. reacting the dispersed isocyanate-terminated prepolymer with a chain extender to form a plurality of polyurethane particles stably dispersed in an aqueous phase.

19. An adhesive comprising the dispersion of polyurethane particles of claim 15.

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20. The adhesive of claim 19, further comprising a melamine-formaldehyde, urea-formaldehyde, benzoguanimine-formaldehyde and/or glycoluril-formaldehyde resin, or mixture of two or more thereof.

25 21. The adhesive of claim 19, further comprising a polyvinyl alcohol or a phenol-formaldehyde resin, or a mixture thereof.

22. The adhesive of claim 19, which cures to form an interpenetrating polymer network.

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